

New Species of *Peperomia* (Piperaceae) and *Dendrocnide*
(Urticaceae) from Rotuma Island, Pacific Ocean

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ROTUMA ISLAND lies in the central Pacific Ocean, at the meeting point of Polynesia, Micronesia, and Melanesia. Its botany had not been explored until the writer made an expedition to it in 1938. Two new species peculiar to it are here announced.

PIPERACEAE

Peperomia rotumaensis sp. nov. (sect. *Verticillatae*)

Fig. 1

DIAGNOSIS HOLOTYPI: Herba 11–26 cm alta perennis terrestris caespitosa vel stolonifer est, caulibus decumbentibus et radicosis in sicco 1–2.5 mm crassis sectionibus vetustioribus hirtellis illis juvenalibus densiter hirtellis, caulibus plerumque simplicibus sed in plantis grandibus caulibus cum ramis ex axillis superis, internodis 15–40 mm longis, foliis plerumque oppositis (sed nodis inferis paucis licet cum folio unico), petiolis 4–11 mm longis sparse hirtellis, laminis 16–58 mm longis eis superis majoribus eis 10–37 mm latis carnosius supra viridibus lucidis infra albis late ellipticis (illis minimis suborbicularibus) apice obtuso basi breve

cuneata supra ad basim et in midnervo et in marginibus hirtellis infra in nervis et sparse in pagina hirtellis palmatim 3-nervosis, spicis 3.5–5 mm longis infra laxe floriferis terminalibus in flore cum pedunculo 7–8 mm longo hirtello gracili, rhachide glabro, bracteis floriferis 0.3–0.4 mm latis peltatis apice orbiculari, ovario ellipsoideo, stigmatibus apicali unico minute puberulo, fructibus 0.5 mm diametro globosis capitati-glandulosis.

DIAGNOSIS OF HOLOTYPE: Terrestrial perennial herb, tufted or stoloniferous, the plants 11–26 cm tall; stem at base decumbent and rooting, when dry 1–2.5 mm thick, the older parts moderately hirtellous, the young parts densely so, mostly simple, but some of the larger plants with axillary branches from the upper nodes; internodes 15–40 mm long; leaves mostly opposite, though a few of the lower nodes may bear single leaves; petioles 4–11 mm long, sparsely hirtellous; blades 16–58 mm long, increasing in size upwards to the upper ones which are the largest, 10–37 mm wide, fleshy, shining green above, white below, broadly elliptic (or the tiny ones suborbicular), the apex obtuse, the base short cuneate, above hirtellous near the base and up the midrib, and on the margins, below hirtellous on the veins and sparsely so on the surface, palmately 3-veined; flowering spikes terminal, 3.5–5 mm long, loosely flowered below, their peduncle 7–8 mm long, hirtellous, slender; rhachis glabrous; floral bracts 0.3–0.4 mm broad, peltate, the apex orbicular; ovary ellipsoid; stigma apical, single, minutely hairy; fruit 0.5 mm in diameter, globose, capitate glandular.

HOLOTYPE: Central Pacific Ocean, Rotuma Island, Itutiu District, Kilinga, shaded moist thin soil, face of steep cliff of tuff, 15 ft alt., July 8, 1938, *H. St. John* 19,096 (BISH). Seen

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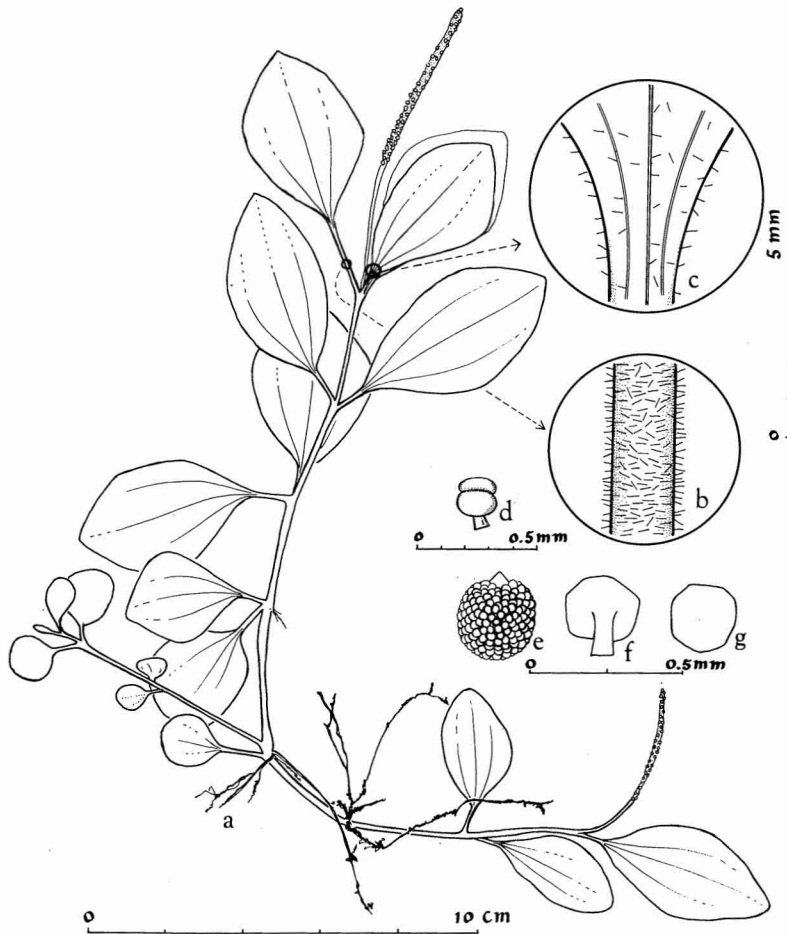


FIG. 1. *Peperomia rotumaensis* St. John, from holotype. *a*, Plant, $\times \frac{1}{2}$; *b*, petiole, $\times 5$; *c*, leaf base, lower side, $\times 5$; *d*, stamen, $\times 30$; *e*, fruit with glands, $\times 30$; *f*, *g*, lateral and apical view of floral bracts, $\times 30$.

only twice. The other place, Afoa Bay adjoins one side of Kilinga, so it is almost the same locality.

DISCUSSION: No vernacular name of this plant could be learned, despite the fact that the Rotuman people have an extensive knowledge of and vernacular naming of the plants in their flora. The plant makes conspicuous tufts on the face of and in easily visible crevices of a sea cliff close to the principal village of the island. Two regular and several other informants were consulted, but no one could furnish a common name of the species.

The most similar species seems to be *P. pilostigma* Yuncker, of Vanua Mbalavu Island, Fiji, a species with the internodes 30–60 mm long; blades palmately 5-nerved; petioles nearly glabrous; floral bracts 0.5 mm broad; stigma subapical, single or divided; fruit 1 mm long, subglobose, pointed. *P. rotumaensis* has the internodes 15–40 mm long; blades palmately 3-nerved; petioles spreading hirtellous; floral bracts 0.3–0.4 mm broad; stigma apical, single; fruit 0.5 mm in diameter, globose.

The new epithet is formed from the name of the island, Rotuma, and *-ensis*, the Latin adjectival locality termination.

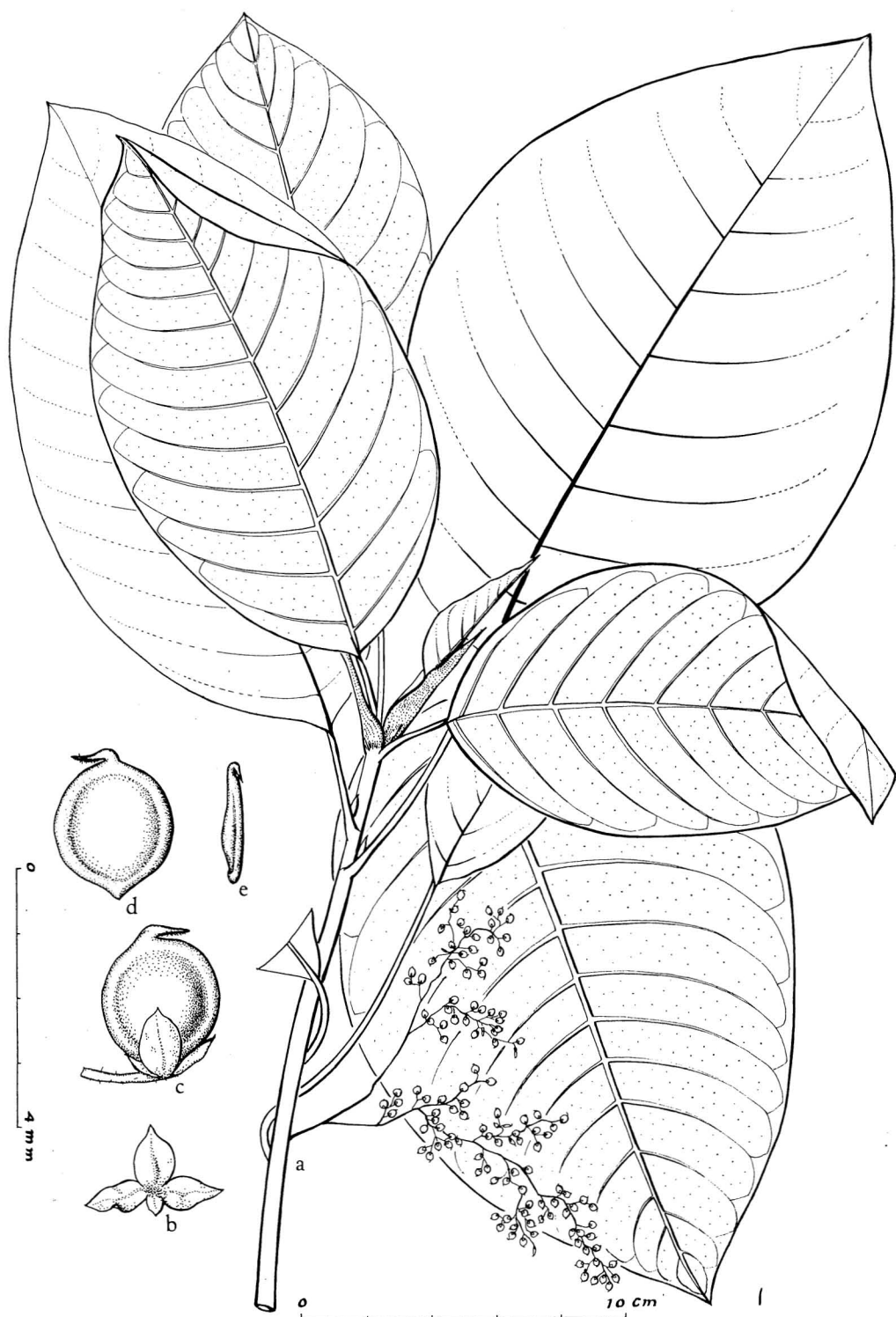


FIG. 2. *Dendrocnide pruritivus* St. John, from holotype. *a*, Fruiting plant, $\times \frac{1}{2}$; *b*, calyx, $\times 10$; *c*, pedicel, calyx, and achene, $\times 10$; *d*, *e*, achene, $\times 10$.

URTICACEAE

Dendrocide pruritivus sp. nov. (sect. *Dendrocide*)

Figs. 2, 3

NOM. VERN.: "mamala" (Rotuma I.).

DIAGNOSIS HOLOTYPE: Arbor 10 m alta cum ramulis cernuis, trunco 20 cm diametro, cortice hinulei-colorato, novellis glabris, ramulis foliosis 5–8 mm diametro angulosis, foliis alternatis glabris, cicatricibus foliorum 4 mm altis semilunatis, stipulis 35–45 mm longis membranaceis subbrunneis, petiolis 3–8 mm longis adscendentibus ad apicem hirtellis tum glabratis laminis 13–39 cm longis 6–18 cm latis glabris ellipticis (vel ovatis) acutis marginibus integris vel paullo undulatis lamina subtiliter chartaceis lucidis supra obscure viridibus infra viridibus copiose punctatis ex crystallis nervis secundariis arcuatis adscendentibus, plantis foemineis cum inflorescentiis 7–15 cm longis paniculatis multifloriferis, pedunculo 3.5–5 cm longo, floribus sessilibus in ramulis, sepalis 4 sed eis 2 grandibus ad lateribus com-

planatis achaeniorum 1–1.5 mm longis latiter ovatis vel suborbicularibus acutis viridibus herbaceis extra pustulati-puberulis albis marginibus latis membranaceis et minute pedunculati-glandulosi-ciliatis, illis sepalis binis supera 1–1.5 mm longa ovata altera 0.4 mm longa late ovata et infra achaenium furtiva, stylo 1 mm longo subsigmoideo subulato ad laterem flecto, stigmate penicillato, achaeneis 2.3–2.5 mm longis 1.8–2 mm latis elliptici-suborbicularibus osseosis brunneis lucidis valde compressis apice umbonato latere uno plano altero supra seminem cum rugo mediali vadoso longitudinali, cupulis gelatinis achaenia ferrentibus. Planta mascula incognita.

DIAGNOSIS OF HOLOTYPE: Tree 10 m tall, with arching branches; trunk 20 cm in diameter; bark smooth, buff colored; young shoots glabrous; leafy branchlets 5–8 mm in diameter, angular; leaves alternate; leaf scars 4 mm high, half-moon shaped; stipules 35–45 mm long, membranous, brownish; petioles 3–8 cm long, ascending, at apex hirsutulous, then glabrate; blades 13–39 cm long, 6–18 cm wide, glabrous, elliptic (or ovate), acute, the margins smooth or slightly wavy, the blade texture thin chartaceous, shining, above dark green, below green, closely dotted with minute crystals (cystoliths), secondary veins arched ascending; female plants with inflorescences 7–15 cm long, bearing numerous flowers in a panicle; peduncle 3.5–5 cm long; flowers mostly sessile on the branchlets; sepals four, the two large ones which are next to the flat sides of the nutlet 1–1.5 mm long, broadly ovate to suborbicular, acute, green, herbaceous, the back white pustulate puberulous, the broad margins membranous, very minutely stalked glandular ciliate; of the remaining two, the upper sepal as long as the lateral ones but ovate, the fourth one 0.4 mm long, broadly ovate, lying under the achene and not easily observed; style 1 mm long, subsigmoid subulate, laterally directed; stigma penicillate; achenes 2.3–2.5 mm long, 1.8–2 mm wide, elliptic-suborbicular, bony, brown, shining, much compressed, the apex umbonate, one face flat, the other with a slight median low longitudinal ridge over the seed; the achenes borne in a gelatinous cup (apparently developed from the receptacle). Staminate plants unknown.



FIG. 3. *Dendrocide pruritivus* St. John, from holotype, habit view in fruit.

EXPANDED DESCRIPTION: Tree 3–10 m tall; trunk 10–20 cm in diameter; petioles 3–18 cm long; blades 13–44 cm long, 6–27 cm wide.

HOLOTYPE: Central Pacific Ocean, Rotuma Island, Oinafa District, Vaitoko, moist woods on nearly bare basal boulders, 50 ft alt., Aug. 26, 1938, *H. St. John* 19,753 (BISH).

SPECIMENS EXAMINED: Central Pacific Ocean, Rotuma Island, Malahaha District, Salsesei, moist thicket, common, 50 ft alt., July 25, 1938, *St. John* 19,265 (BISH); Solnahu Island, moist wooded ridge, 150 ft alt., Aug. 18, 1938, *St. John* 19,589 (BISH); Uea Island, steep wooded slope, 250 ft alt., Aug. 22, 1938, *St. John* 19,654 (BISH). Also observed on Rotuma Island at Huo, and Pepjei, and on Solkopo Island, but the plant was definitely uncommon.

DISCUSSION: There are other species of this noxious genus in Tahiti, Samoa, Tonga, Niue, Fiji, Kusaie, New Hebrides, New Guinea, Truk, Marianas, Philippines, and Java, but most of them are easily separable. The most closely related species is clearly *D. kusaiana* (Kanehira) Chew, of Kusaie Island. This has leaves that are almost identical with those of the Rotuman plant, while the foliage of the several Fijian species is very different.

The species of this group have long been classed in the genus *Laportea*, but the recent studies of Chew (1965) have proven that *Laportea* contains only annual monocious herbs with dentate leaves, and that woody species like this one belong in the genus *Dendrocnide*.

The sap of this tree is poisonous and contact with it causes poisoning and severe itching of a person's skin. Knowing of it from previous experience with a species in Fiji, I took every precaution to avoid getting poisoned while gathering the specimens. Holding the branches down with my foot, I chopped off the branchlets against the ground. Two harmless sticks were used like tweezers to pick up the specimens which were placed on and rolled in newspapers. Despite these precautions, somehow a little sap touched the back of one of my hands, and promptly caused a severe itching and burning. Suffering from this first contact with it I tried applications of water which increased the pain, then of mud which had no effect, then

of sour orange juice and this latter application abated the pain. The recent report by Keegan and Macfarlane (1963, pp. 31–37) summarized knowledge of the poisonous properties of the Australian species, and reported their own experiments, principally on *D. moroides* (Wedd.) Chew, the "Gympie Bush" of Queensland. This large bush is densely hirsute on stems and leaves. The hairs secrete, or if broken ooze, a violently poisonous liquid which they described, but had not identified chemically.

In *D. pruritivus* of Rotuma Island, the source of the poison seems to be different. This tree has its stems and blades completely glabrous. There are some tiny hairs on the plant, but it takes close examination with a good lens to see them. On the branches of the pistillate inflorescence there are a few, very tiny, stiff hairs, and the back of the 1–1.5-mm sepals is minutely pustulate puberulous, and the petioles at apex are at first hirsutulous, then later glabrate. Contact with this sparse, localized pubescence is possible. However, in my field experience on Rotuma, I thought I had been poisoned by the sap of the cut branches. This seems a different source of the poison from that in *D. moroides* of Australia, which poisons people or animals that touch its brittle, stinging hairs.

The closest relative of the new species is *D. kusaiana* (Kanehira) Chew, a species with the pistillate sepals 0.5–1 mm long; achenes elliptic, the flat face with numerous conic (or slightly elongate) projections; tree 4–6 m tall, and up to 50 cm in diameter. *D. pruritivus* has the pistillate sepals with the two larger ones 1.5–2 mm long; achenes elliptic-suborbicular, the flat faces smooth; shrub or tree 3–10 m tall, 10–20 cm in diameter.

The new epithet is the Latin adjective, *pruritivus*, which means causing itching, and which describes a property of the plant.

LITERATURE CITED

- CHEW, WEE-LEK. 1965. *Laportea* and allied genera (Urticaceae). *Gardens' Bulletin*, vol. 21, no. 2, pp. 195–208.
- KEEGAN, HUGH L., and W. V. MACFARLANE. 1963. *Venomous and poisonous animals and noxious plants of the Pacific region*. New York, Pergamon Press. 456 pp.